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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/265,601	03/10/1999	WAN-UK CHOI	03364.P010	4721

7590 07/24/2002

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EXAMINER	
DOVE, TRACY MAE	
ART UNIT	**PAPER NUMBER**
1745	13

DATE MAILED: 07/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

MF=8

Office Action Summary

Application No.	Applicant(s)
09/265,601	Choi
Examiner	**Art Unit**
Tracy Dove	1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *May 10, 2002*.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-8* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☒ All b) ☐ Some* c) ☐ None of:

1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

This Office Action is in response to the communication filed on 5/10/02. Applicant's arguments have been considered, but are not convincing. Claims 1-8 remain rejected in view of the prior art. This Action is made **FINAL**.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sonobe et al., US 5,721,071 "Sonobe".

Sonobe teaches a graphitic material suitable as an electrode material for a non-aqueous solvent-type secondary battery. See col. 1, lines 7-13. A lithium battery is specifically disclosed in col. 7, lines 24-38. Example 4 teaches a petroleum pitch having a quinoline-insoluble content of 1 wt% (organic insoluble impurities) was heat treated at 600°C for 1 hour (coking) in a nitrogen gas stream. Then the pitch was pulverized to obtain carbon precursor particles. The carbon precursor particles were carbonized and graphitized to obtain a graphitic material. Sonobe teaches that the carbon precursor may be heat-treated at 350-700°C in an inert gas atmosphere (heat-treating) to effect further polycondensation and remove light fractions, thereby providing a carbon precursor having an optically anisotropic texture (col. 5, lines 5-16).

Sonobe does not explicitly teach heat treating for "4 hours or more . . . to thereby produce at least 50 weight percent of mesophase particles based on the pitch". Sonobe does not explicitly state that the pitch is dissolved in an organic solvent to remove insoluble components.

However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because Sonobe teaches that mesophase bead material is produced by heat-treating petroleum pitch or coal pitch for 1-2 hours at 400-450°C (col. 2, lines 24-27). Thus one of skill would have known that the heat-treatment of the carbon precursor taught in col. 5, lines 5-16 of Sonobe would result in the formation of mesophase bead material. While Sonobe does not explicitly teach heat-treating for 4 hours, one of skill would have found heat treating for 4 hours obvious because the duration of the heat-treating step would have an effect on the formation of mesophase bead material. Through routine experimentation,

one of skill could have determined the heating durations necessary to produce a specific percent of mesophase bead material. Sonobe teaches heat-treating petroleum pitch at 400-450°C results in the formation of mesophase bead material.

Regarding the limitation that the pitch is dissolved in an organic solvent to remove insoluble components, the invention as a whole would have been obvious to one having ordinary skill because Sonobe suggests that the organic insoluble components have been removed from the petroleum pitch. Example 4 teaches that the petroleum pitch has an quinoline (organic)-insoluble content of 1 wt%. This suggests that the petroleum pitch has been dissolved in quinoline to remove organic-insoluble components.

Claims 1-4 are rejected under 35 U.S.C. 102(e)/103(a) as being anticipated by and alternatively unpatentable over Kubota et al., US 6,139,990 "Kubota".

See Office Action of 12/6/00 for the reasons for rejections

Claims 1-8 are rejected under 35 U.S.C. 102(e)/103(a) as being anticipated by and alternatively unpatentable over Hayashi et al., US 5,906,900 "Hayashi".

See Office Action of 12/6/00 for the reasons for rejections

Response to Arguments

Applicant's arguments filed 5/10/02 have been fully considered but they are not persuasive.

35 U.S.C. 112, first paragraph

The declaration under 37 CFR 1.132 filed 5/10/02 is sufficient to overcome the rejection of claims 1-4 based upon 35 U.S.C. 112, first paragraph.

35 U.S.C. 112, second paragraph

The declaration under 37 CFR 1.132 filed 5/10/02 is sufficient to overcome the rejection of claims 1-4 based upon 35 U.S.C. 112, second paragraph.

Kubota et al.

Applicant argues Kubota cannot be properly cited against the present application because the filing date of 9/10/98 is after the priority date of 3/10/98 of Korean Patent Application No. 1998-7854.

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Nagamine et al.

The rejection of claims 1-4 under 35 U.S.C. 102(e)/103(a) as being anticipated by and alternatively unpatentable over Nagamine has been withdrawn.

Hayashi et al.

Applicant argues Hayashi does not teach or suggest coking the pitch or graphitization of a pulverized pitch, as recited in claims 1, 3 and 5. Applicant further argues that Hayashi lacks any disclosure of an intensity ratio, as recited in claims 1 and 3.

Examiner disagrees with Applicant's analysis of the Hayashi reference. Regarding claims 1 and 3, Hayashi does teach and suggest the intensity ratio as recited in claims 1 and 3. Figure 3 shows an X-ray diffraction spectrum of the carbonaceous material of Hayashi. The X-ray diffraction (CuKα line as a line source) shows a diffraction pattern having a peak derived from the graphite-like carbonaceous material (N) as an apparent single peak and an extremely broad peak derived from the carbonaceous material (S) in a shoulder shape at a low angle side thereof. There is a great difference in amount ratio between the graphite-like carbonaceous material (N) and the carbonaceous material (S). See col. 9, line 60-col. 10, line 38. The peak show in Fig. 3 is indicative of the (002) plane of the carbonaceous material. Since Hayashi teaches and suggests that there is no other definitive peak, the peak intensity of a (110) plane would be zero or about zero. Thus, Hayashi teaches and suggests the intensity ratio of instant claims 1 and 3.

Examiner points out that claims 1 and 3 are product-by-process claims. In order to show unexpected results to overcome the obvious rejection (product-by-process), Applicant must show the products are materially different. Pointing out a possible difference in the method of making the claimed graphite material is not enough.

Regarding the coking and graphitizing limitations of claim 5, Hayashi teaches the method limitations in col. 5, lines 58-col. 6, line 8. Specifically, Hayashi teaches heating the intermediate

at 600°C and then preferably heating at 2500°C. Heating at 2500°C would result in a carbonized and graphitized carbon material. When the carbonaceous material is heated from 600°C to 2500°C both carbonization and graphitization would occur. It is important to note the claims do not limit the order of the process steps recited. The courts have stated changes in sequence of process steps is obvious.

> Ex parte Rubin , 128 USPQ 440 (Bd. App. 1959) (Prior art reference disclosing a process of making a laminated sheet wherein a base sheet is first coated with a metallic film and thereafter impregnated with a thermosetting material was held to render prima facie obvious claims directed to a process of making a laminated sheet by reversing the order of the prior art process steps.). See also In re Burhans, 154 F.2d 690, 69 USPQ 330 (CCPA 1946) (selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results); In re Gibson, 39 F.2d 975, 5 USPQ 230 (CCPA 1930) (Selection of any order of mixing ingredients is prima facie obvious.).

Sonobe et al.

Applicant argues Sonobe fails to teach or suggest coking the pitch, as recited in claim 5. Specifically argued, the heat treatment of Sonobe cannot read upon both the "heat treating" and "coking" of claim 5.

However, Sonobe teaches two separate heating steps regarding the "heat treating" and "coking" steps of claim 5. See discussion of Sonobe above.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is (703) 308-8821. The Examiner may normally be reached Monday-Thursday (9:00 AM-7:30 PM). My supervisor is Pat Ryan, who can be reached at (703) 308-2383. The Art Unit receptionist can be reached at (703) 308-0661 and the official fax numbers are 703-872-9310 (after non-final) and 703-872-9311 (after final).

July 18, 2002

CAROL CHANEY
PRIMARY EXAMINER